

CLAIMS

- 5 1. A multi-column chromatography separation process producing at least two fractions, comprising the following steps, at the outlet from the extract zone, zone I, or raffinate zone, zone III:
  - (i) at least a part of the outlet flow rate from said zone is drawn off;
  - (ii) said part is concentrated; and
  - 10 (iii) the concentrated part is at least partially reinjected.
- 15 2. The process according to claim 1, in which the totality of the outlet flow rate from said zone is drawn off.
3. The process according to claim 1 or 2, in which the concentrated part is partially reinjected.
- 20 4. The process according to claim 3, in which between 50 and 99.5 % of the concentrated part, preferably between 70 and 98%, is reinjected.
5. The process according to claim 1 or 2, in which the concentrated part is totally reinjected.
- 25 6. The process according to one of Claims 1-5, in which a concentration factor  $F$  is comprised between 1.1 and 10, preferably between 1.25 and 5.
- 30 7. The process according to one of Claims 1-6, in which drawing-off is performed downstream of the extract zone, zone I.
- 35 8. The process according to one of Claims 1-7, characterised in that the chromatography separation is of the SMB type.

9. The process according to one of Claims 1-7, characterised in that the chromatography separation is of the Varicol type.

5 10. Chromatography apparatus comprising:

- i. a plurality of separation columns;
- ii. a drawing-off point at the outlet from said columns for drawing off at least a part of the outlet flow rate from a column;
- 10 iii. a device for concentrating said part;
- iv. a reinjection point immediately after the drawing-off point for reinjecting at least partially the concentrated part.

15 11. The apparatus according to claim 10, comprising a valve between the drawing-off and reinjection points.

12. The apparatus according to claim 10 or 11, comprising partial collection of the concentrated part.

20 13. The apparatus according to one of claims 10-12, in which the concentration device is an evaporator.

25 14. The apparatus according to one of claims 10-13, characterised in that the plurality of separation columns is of the SMB type.

30 15. The apparatus according to one of claims 10-13, characterised in that the plurality of separation columns is of the Varicol type.

16. The apparatus according to one of claims 10-15, for carrying out the process according to one of claims 1-9.